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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/749,347	12/30/2003	Robert S. Chau	42P16685	8203

8791 7590 06/07/2005

BLAKELY SOKOLOFF TAYLOR & ZAFMAN  
12400 WILSHIRE BOULEVARD  
SEVENTH FLOOR  
LOS ANGELES, CA 90025-1030

EXAMINER

BREWSTER, WILLIAM M

ART UNIT PAPER NUMBER

2823

DATE MAILED: 06/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/749,347

Applicant(s)

CHAU ET AL.

Examiner

William M. Brewster

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 11-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 21-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Election/Restrictions*

Applicant's election without traverse of claims 1-10, 21-23 in the reply filed on 18 April 2005 is acknowledged.

Claims 11-20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 18 April 2005.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-10, 21-23 are rejected under 35 U.S.C. 102(e) as being anticipated by Chang et al., US Publication No. 2003/0030793 A1.

Chang anticipates a method, comprising: exciting an undesirable bond in an atomic layer deposition (ALD) formed film to an energy level greater than a ground state of the undesirable bond;

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limitations from claim 21, a method, comprising: modifying undesirable bonds in an atomic layer deposition (ALD) formed film to an energy level greater than a ground state of the undesirable bonds; and exposing the film to a reactant; depositing with e.g. metal oxide, p. 3, ¶ 49; depositing p. 3, ¶ 40, and exciting the undesired bond by annealing, in fig. 1, with energy source pp. 3-4, ¶ 44-45;

limitations from claim 2, the method of claim 1, further comprising:

after exciting the undesirable bond, exposing the film to a reactant, in fig. 2, p. 1, ¶ 5;

limitations from claim 3, the method of claim 2, wherein the reactant is an oxygen source, p. 1, ¶ 5;

limitations from claim 4, the method of claim 3, wherein the oxygen source is water, p. 1, ¶ 5;

limitations from claim 5, the method of claim 2, wherein the reactant comprises a metal precursor, p. 5, ¶ 56;

limitations from claim 6, the method of claim 5, wherein the metal is one of zirconium, titanium, aluminum, gallium, cesium, indium, hafnium, tantalum, praseodymium, niobium, scandium, lutetium, cerium and lanthanum, p. 5, ¶ 56;

limitations from claim 7, the method of claim 1, wherein the undesirable bonds are metal-metal bonds, fig. 2, with multiple iterations, where the annealing will break the undesirable bonds, p. 3, ¶ 39-40;

limitations from claim 8, the method of claim 7, wherein the metal is selected from a group consisting of zirconium, titanium, aluminum, gallium, cesium,

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indium, hafnium, tantalum, praseodymium, niobium, scandium, lutetium, cerium and lanthanum, p. 3, ¶ 39, p. 5, ¶ 56;

limitations from claim 9, the method of claim 1, wherein the film is a metal oxide film, p. 3, ¶ 39;

limitations from claim 10, the method of claim 1, wherein exciting the undesirable bonds comprises exposing the undesirable bonds to electromagnetic radiation, pp. 3-4, ¶ 45;

limitations from claim 22, the method of claim 21, wherein modifying the undesirable bonds comprises reducing the number of undesirable bonds on the film, p. 6, ¶ 64-67;

limitations from claim 23, the method of claim 21, wherein modifying the undesirable bonds comprises minimizing the number of undesirable bonds on the film. p. 6, ¶ 64-67.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William M. Brewster whose telephone number is 571-272-1854. The examiner can normally be reached on Full Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 571-272-1855. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*William M. Brewster*

2 June 2005

WB